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ABSTRACT

This report presents a description of findings from a study of the Research and Development Utilization Program (RDU), which emphasizes a research-based approach to local school improvement. The major objectives of the report are to describe the similarities and differences that exist among the seven projects or schools of the RDU program, to examine the first steps taken by the schools as they develop new school improvement strategies, and to describe the role of the external linking agents. Data collection activities included site visits to 42 schools and detailed interviews with project participants. The findings indicated that schools participating in the program are engaging in more systematic needs assessment than they did prior to involvement in the program. Also, services of the linking agents are valued by the participating schools. Finally, most participating RDU projects are looking for ways to maintain their functioning now that federal funding has ended. (Author/LD)

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Linking R&D With Schools:

An Interim Report

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September, 1979

Part of

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PREFACE

This report presents interim findings from Abt Associates' study of the Research and Development Utilization (RDU) Program. An "action research" effort sponsored by the National Institute of Education (NIE) and administered through seven organizations or projects, the RDU Program was initiated as an effort to close the communications gap which exists between the producers and consumers of knowledge. This goal was to be met by helping local schools improve their capabilities in the areas of rational problem solving and knowledge utilization in order to strengthen administrative and instructional practices, and to add to existing knowledge about the design, operation, and results of dissemination programs in education.

While the federally supported service delivery phase of the RDU Program has been completed, data collection, analysis, and reporting are still in progress. Therefore, this report is an interim one in two senses: first, it addresses only a subset of the issues and questions dealt with in the program study and, second, it is based only on preliminary data that were available to us in 1977 and 1978. In particular, it is important to emphasize that the major topic of program outcomes is addressed in only limited ways since information regarding this critical aspect of program functioning is not yet available.

The major objectives of this report are:

- to describe the similarities and differences in structure and function which exist among the seven projects operated under the RDU Program;
- to examine the first steps taken by the schools as they attempted to develop new school improvement strategies, particularly the problem identification process and its outcome; and
- to describe the role of the external linking agents who represent a key strategy for delivering technical assistance and information to local schools.

For those readers who are interested in additional documents that will be produced from the study, a diagram outlining the report structure is presented in the Appendix. Future reports will cover such topics as selected R&D products; findings relevant to practitioners; linking agent support and training; project management issues and practices; the role of the sponsor (NIE); and the important policy questions to emerge from the study.

We wish to acknowledge our indebtedness to the Far West Regional Laboratory, particularly Paul Hood, Laird Blackwell, and Betty Pool, for its development of a data collection instrument and coding scheme for the school level analysis. Robert Yin, James Molitor, and Gregory Spencer of Abt Associates, carried out the research at the project, school, and linking agent levels, respectively, under the direction of Karen Seashore Louis, the project's Principal Investigator, and with guidance and support from Sheila Rosenblum, Kent Chabotar, Diane Kell, Abigail Millikan, and Thea Moskat.

Michael Kane served as Project Director during most of the period covered by this report. Our Project Officer at NIE, John Egermeier, provided timely and critical feedback on earlier drafts. Mary Schumacher's editorial assistance was invaluable in preparing this report. Readers interested in more detail about the topics and findings presented in this report may contact the authors at Abt Associates Inc.

INTRODUCTION

A number of federally stimulated efforts in the field of education have focused on finding solutions to local school problems, and have resulted in the development of innovative curricula, training methods, and classroom materials by many local schools, universities, and research organizations. Unfortunately, the use of these and other educational research and development (R&D) products has often failed to spread far beyond the places where they were initially developed. As a consequence many schools across the country are still struggling with the same problems; some try to solve their problems by using local ingenuity and, in the process, invent the wheel many times over, a few adopt programs or techniques which have been tried elsewhere but have not been proven effective, and many resign themselves to the status quo.

In recent years, however, both federal and state governments have begun sponsoring dissemination projects designed to close the communications gap which exists between the producers and consumers of new educational products and knowledge. One such effort, the Research and Development Utilization (RDU) Program, established by the National Institute of Education (NIE) in 1976, is unusual in its emphasis on a research-based, rational approach to local school improvement through the use of existing, validated products of federally funded research and development activities.

Regarded as an "action research" endeavor, this program has two major components: seven operational projects and a research study (reported herein). These two components have been designed to achieve three major objectives:

- to help schools alleviate specific, locally defined problems in the areas of basic skills and/or career education;
- to help school and community personnel learn about the products of educational R&D; and
- to increase understanding of how the local program improvement process can be better managed and become more effective.

In pursuing these objectives, every participating school site was given external assistance in following the sequence of activities listed below:

- identification of a problem or set of problems, mainly by the local school staff;

- examination of alternative solutions to the problem;
- selection of specific R&D products considered capable of reducing these problems;
- implementation of new practices within the appropriate setting;
- incorporation of a solution and evaluation of the entire process and its results.

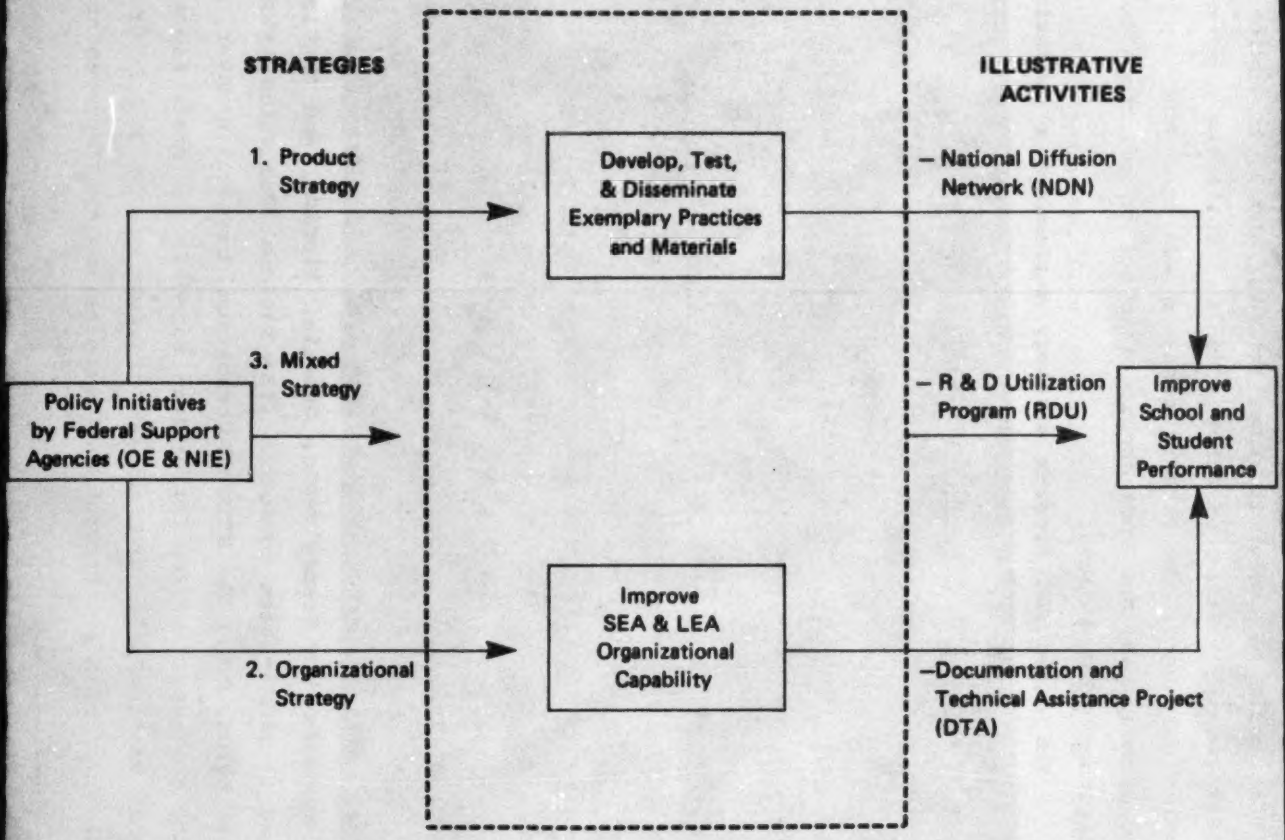
For many schools, this problem-solving capability has been applied to the basic skills curriculum of reading or math. In other schools, the emphasis has been on career education--supplementary lessons to improve the career awareness of primary school students or the career knowledge of secondary school students. Whichever the case, the new educational practices employed were based on a pool of R&D products specifically selected to serve local needs.

When compared with other federally funded strategies that are designed to improve the educational system, the RDU Program is unusual in its approach because it is equally concerned with the use of R&D products and the development of local organizational capabilities to solve problems; other federal programs have tended to concentrate on one or the other of these strategies. Figure 1 illustrates these three possibilities: a products strategy, an organizational capacity-building strategy, and a mixed (RDU) strategy.

For example, the main objective of the National Diffusion Network (NDN), supported by the U.S. Office of Education (OE) since 1975, has been to diffuse specific exemplary practices and materials that have been deemed successful, using a certification procedure involving the Joint Dissemination Review Panel. The NDN system does include a whole support system of organizations external to the school which may act as "developers" or "facilitators." The program is designed however, to provide only limited technical assistance to potential adopters of products within the product pool.* An example of the organizational capacity-building approach, on the other hand, has been the Documentation and Technical Assistance Program sponsored by NIE. The

*Local school systems are also "developers" of specific R&D products. However, the NDN program does not generally involve explicit capacity-building of the school system as users of R&D.

Figure 1
THREE FEDERAL STRATEGIES FOR PROVIDING EXTERNAL ASSISTANCE FOR IMPROVING SCHOOL AND STUDENT PERFORMANCE


STRATEGIES
ILLUSTRATIVE ACTIVITIES
1. Product Strategy
Develop, Test, & Disseminate Exemplary Practices and Materials
– National Diffusion Network (NDN)
3. Mixed Strategy
Policy Initiatives by Federal Support Agencies (OE & NIE)
– R & D Utilization Program (RDU)
Improve School and Student Performance
Improve SEA & LEA Organizational Capability
2. Organizational Strategy
–Documentation and Technical Assistance Project (DTA)

assistance provided by this program was not based on the assumption that a specific set of validated practices and materials are available for replication. Instead, the program had three objectives: 1) to define what constitutes organizational capacity; 2) to transform this knowledge into information that could be useful to other schools; and 3) to assist in delivering the packaged information to other schools. While the program had a strong diffusion component, the primary emphasis was upon the improvement of the change process, and not upon any specific set of solutions to instructional or classroom-related needs.

The mixed RDU Program strategy represents a potential centerpiece among federal educational efforts, for four reasons. First, the program is at once both product- and process-oriented and can thus yield useful information about the advantages of each strategy for improving school and student performance. Second, most of the program has been directed at basic skills curriculum, which has not necessarily been the primary focus of the other programs cited above, even though local school systems have been under public pressure to improve this aspect of their offerings. Third, the program has been designed to improve the organizational capabilities of local school systems, thereby attempting to make these systems better users of R&D and better implementers of improved practices. Fourth, the program involves a network-building effort that may, in the long run, improve the intergovernmental structure for linking federal, state, and local education activities. Thus, a major component of the program is the use of intermediaries, or linking agents.

As depicted in Figure 2, the RDU Program operated through seven geographically dispersed projects: four under the direction of state education agencies (in Pennsylvania, Georgia, Florida, and Michigan) and three managed by multi-state consortia (the National Education Association, based in Washington, D.C.; The NETWORK Consortium, based in Andover, Massachusetts; and the Northwest Reading Consortium, based in the state education agency in Olympia, Washington). Overall coordination of the RDU Program was the responsibility of NIE's Program on Dissemination and Improvement of Practice.*

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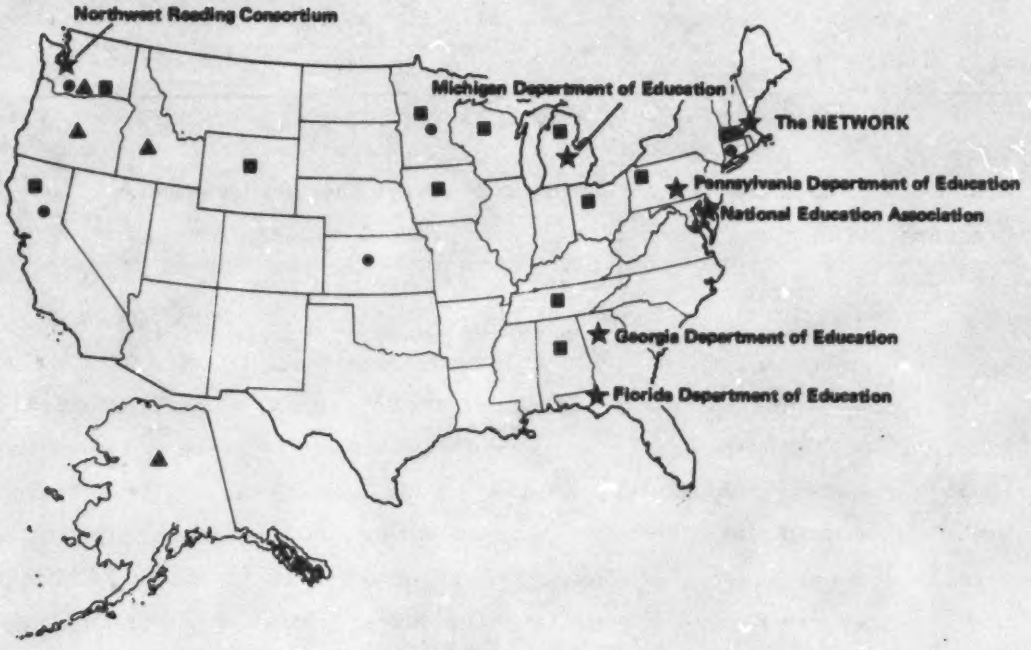
*Responsibility for the seven operational projects resided with the Regional Programs (RP) unit. Responsibility for the study of the program (reported herein) lies with the Research and Educational Practice (REP) unit. Both units are part of NIE's Program on Dissemination and Improvement of Practice.

Figure 2

GEOGRAPHICAL LOCATION OF R & D UTILIZATION PROGRAM
PROJECTS AND SITES



LEGEND

- ★ Project Headquarters
- ● States in which The NETWORK sites are located
- ▲ States in which Northwest Reading Consortium sites are located
- ■ States in which National Education Association sites are located

This study of the RDU Program provides a challenging opportunity to make major contributions to the understanding of rational problem solving in local schools by examining how schools utilize externally developed R&D products to improve administrative and instructional practices. It also promises to increase the store of relevant information about the design, operation, and results of dissemination programs in education. Six major questions are addressed in the study:

- How do different agencies providing services to schools coordinate their activities?
- To what degree can federally funded intervention programs help schools overcome barriers to successful problem solving?
- To what degree is available R&D information relevant to local schools?
- What are the potential and actual impacts of educational R&D products on local schools?
- What factors facilitate the institutionalization of innovative practices?
- How can external agents and agencies assist schools in the process of school improvement?

This interim report is a summary of analyses of a limited set of data collected during the first year of the study. The data sources include local school site demographic forms (N=178), surveys of "principal informants" conducted in each site shortly after the beginning of the program (N=199), an administrative report completed after problem identification (N=99), site visits to 19 participating schools conducted by Abt Associates staff members, visits to headquarters of the seven RDU projects, and a formal mailed survey conducted with the linking agents (N=56) who served as technical assistants to participating schools and districts.

THE RDU PROJECTS: THE CONTEXT FOR SCHOOL IMPROVEMENT EFFORTS

This section is intended to provide an overview of the structure and functioning of the service delivery system of the RDU Program as it operated through the seven projects. Those project features common to all seven will be described, followed by project-specific descriptions, including some information about the types of schools which were served by each project.

Common Features

School improvement activities do not just happen; they are the result of human actions. In the case of the RDU Program, these improvements were expected to occur not only as a consequence of the technical assistance provided by the seven RDU projects, but also because the participating schools see the need for change.

The organization and functioning of each project was different, but despite these differences, there were certain significant commonalities which ran across the seven projects in the structure of support services provided to local schools:

- the operation of a project headquarters to coordinate the services which were supplied directly to schools under the RDU Program;
- the development and administration of a knowledge base, composed of educational research and development products, supported by some form of validation or other evidence of impact;
- the development of training and technical assistance components to serve project employees who were providing school-based services and, in some cases, to provide simultaneous training for school personnel; and
- the development of project evaluation and research activities designed to augment a national research data base and to facilitate local self-evaluation.

All of the projects emphasized one major objective: the improvement of local problem-solving capacity, essentially through the use of externally

developed and validated educational programs and products. To achieve this objective, each project provided technical assistance to schools during several phases of a problem-solving process. Such support was provided over a substantial period of time (i.e., two years or more). The following processes were also common to all projects:

- The projects all dealt directly with the local schools or school districts being served in the program. Interaction between the project and the local schools was on a face-to-face basis in some cases.
- Each project supported two or more linking agents who coordinated the services provided to local schools and school districts. Most operated out of an intermediate service agency (i.e., multi-district resource agency) or a state education agency, and each serviced a specific, limited set of local schools or districts.
- Each project stressed the importance of local decision making. In most projects, RDU-sponsored school improvement activities were supported at the site level through the establishment of local decision-making structures such as advisory councils or local action teams.
- In addition to the linking agents, each project relied to some extent on a network of resource agencies which cooperated in providing assistance to schools or performing other project-related tasks. These agencies included state education agencies, intermediate service agencies, public and private universities and colleges, federally funded R&D centers, teacher centers and independent firms.

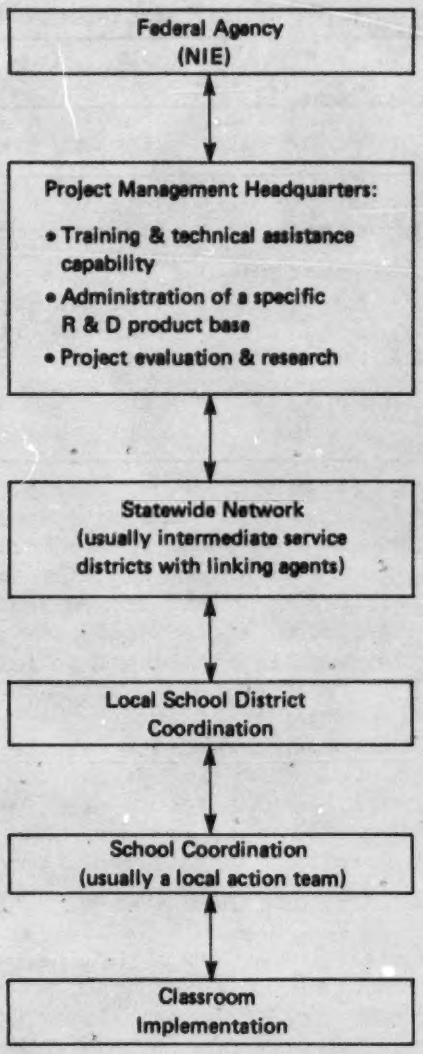
Figure 3 presents a picture of the RDU project structure from its commencement (through state funding) to its final step, classroom implementation of improvement activities.

Distinctive Features

The seven RDU projects and their participating sites, while sharing the key characteristics outlined, varied in three important ways.

While NIE provided at least 90 percent of the funds supporting RDU activities to each project, some of the project structures were specifically established for purposes of participation in the program, while others incorporated RDU activities within an already existing structure or network.

Figure 3
RDU PROJECT STRUCTURE



The definition of a participating site varied from project to project. In some cases, a site was a single classroom or group of classrooms within a school; in others, it was a particular grade level across schools in a school district, or several schools within a district, and so on. (Generally, however, in this report the term site is used interchangeably with school, since RDU activities are targeted to school implementation.)

The kinds of services provided to sites by a given project also varied. In some cases, the technical assistance and information service delivered to clients was coordinated solely by a full-time linking agent with a limited number of client schools. In other cases, linking agents had a more limited relationship with schools in the RDU Program, spending portions of their work time on activities not associated with RDU, and/or were assisted in the provision of services by a variety of other agencies.

The following brief descriptions of the seven projects indicate the distinctive features of each, and Figure 4 details project characteristics. These data were collected from demographic surveys, pre-project documents, and project administrative reports written early in the life of each project.

Northwest Reading Consortium (NRC). This project, under the overall direction of the Washington State Education Agency, operated as a consortium of four states in the Northwest: Washington, Oregon, Alaska, and Idaho. The consortium built upon the states' existing Right to Read (R2R) programs; each of the approximately 40 participating schools was an R2R school.* Considered an extension of the R2R experience, the project provided the schools with the knowledge and resources to seek R&D-based solutions to problems identified through comprehensive needs assessments. Support services were provided to the local schools by a full-time linking agent housed in each of the four linking agencies, which included intermediate service districts in Washington, Oregon, and Alaska, and a university in Idaho. An additional affiliate of the consortium, the Northwest Regional Laboratory (NWRL), was responsible for training the linking agents and also for compiling the knowledge base of available R&D products to which the schools could refer.

The Northwest Reading Consortium's RDU project served 40 schools with an average of 594 students in each school site. The racial composition of the participating student body was 94 percent white, three percent Native American, and less than one percent each of Hispanics, blacks, and others. While all grades were served by the project, about half of the schools served only grades K-6. Thirteen percent of the NRC sites were located in urban communities, 30 percent in suburban, 33 percent in rural, and 23 percent in mixed areas.

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*Right to Read is a nationwide program sponsored by the U.S. Office of Education to eliminate functional illiteracy.

Figure 4
PROJECT, SCHOOL, COMMUNITY AND LINKER CHARACTERISTICS FOR SEVEN RDU PROJECTS

Characteristics	NAME OF PROJECT						
	NRC	Georgia	Pennsylvania	NETWORK	NEA	Florida	Michigan
1) Knowledge base (Content area of R & D Products)	Reading	Reading, Math & Career Ed	Mainly Reading	Reading	Inservice Materials	Reading & Math	Career Ed
2) Total Funds to Each Project* ($000)	1,266	835	1,144	1,421	1,183	1,421	1,092
3) Number of local sites	40	38**	17	24	57**	28	48**
4) Project Funds available to each site ($000)***	1	6	5	5	1	5	9
5) Types of Schools Served							
a) % Elementary	50%	--	82%	77%	16%	100%	No Data
b) % Middle	22%	--	18%	18%	18%	--	
c) % Secondary	29%	--	--	4%	--	--	
d) % entire LEA	--	100%	--	--	65%	--	
6) Mean School Size	594	528	442	652	609	619	No Data
7) Type of Community							
a) % Urban	13%	4%	29%	36%	17%	24%	No Data
b) % Suburban	30%	--	18%	23%	35%	31%	
c) % Rural	33%	93%	53%	27%	39%	45%	
d) % Combination	23%	4%	--	14%	8%	--	
8) Number of Linkers	4	7	2	6	22	8	46
9) Type of Linker Host Organizations	Mainly ISAs****	ISAs	ISAs	Mainly non-profit educ. centers	State Depts. & State Ed. Assocs.	ISAs	ISAs
10) Mean no. of sites per Linker	9	7.7	5	4.5	4.5	4	2
11) % of Time Linker spends on RDU Project	100%	67%	97%	92%	12%	65%	7%

* Source of information: NIE

** This is the number of school districts; the number of schools is larger but unknown.

*** In most projects the funds are distributed at incremental steps of the problem solving process. The numbers represented here are maximum funds available.

**** Intermediate services agency or district.

Georgia Department of Education. The emphasis of the RDU project in Georgia was on building local education agency (school district) capacities in the early stages of planning and program selection. To achieve this purpose, services and funds were provided to 38 participating school districts to assist them through these early stages. The implementation phase of the problem-solving model was subsequently carried out with federal funds available through the state department of education under Title IV-C of the Elementary and Secondary Education Act. The school districts participating in the project were located in three of the state's 16 intermediate service agencies, each of which employed from one to four linking agents (most of whom served part-time in this role) to assist the local school personnel in carrying out their planning and program selection activities. The extent of involvement of these linking agents in local activities varied considerably; some offered extensive personal assistance and consultation and others simply monitored and provided liaison to project staff at the state level.

The Georgia RDU Program was implemented on the school district level. The average number of students served was 2,700 per local education agency, or 528 per school. Roughly 67 percent of the students were white, and the remaining 33 percent were black.

All but two of the local education agencies were reported to be in rural districts, with the remaining two being categorized as either urban or mixed. The average size of the community, based on 25 reports, was about 18,000.

Pennsylvania Department of Education. The participating resource agencies of the Pennsylvania RDU project, in addition to the Pennsylvania Department of Education, were Research for Better Schools (a regional educational laboratory), Research and Information Services for Education (an independent information and dissemination service), the Learning Research and Development Center at the University of Pittsburgh, and two of the state's intermediate service agencies. Two full-time linking agents--one in each intermediate service agency, each working with five schools--served as the primary project contacts for their respective schools and coordinated all project services to those schools. In addition, they frequently visited the schools to carry out needs assessment activities and to assist in group planning and decision-making sessions. The project's problem-solving model, which was developed by the participating resource agencies, involved numerous defined steps, including a series of formal sessions at the school sites. These sessions were attended not only by the local action team and the linking agent, but also by a team of resource agency personnel.

Fourteen (82 percent) of the seventeen schools in this project were elementary schools (grades K-5); the other three were middle schools (grades 6-8). The average site served about 440 students. Eighty-eight percent of the students were white, seven percent Hispanic, and a little over one percent black.

National Education Association. The National Education Association (NEA) operated its project in collaboration with the state education agencies and corresponding state education associations in 12 states: Alabama, California, Iowa, Massachusetts, Michigan, Minnesota, Ohio, Pennsylvania,

Tennessee, Washington, Wisconsin, and Wyoming. In contrast to most of the other RDU projects, this project focused on the improvement of teacher in-service education. Local in-service education committees in approximately 60 school districts decided on local needs for teacher in-service education and communicated these needs (via a toll-free telephone call) to one of two information specialists in NEA's Washington, D.C., office. Using an information system that contains descriptions of hundreds of in-service training programs, the information specialists then selected those in-service training packages that seemed most appropriate and sent descriptions of these packages to the site. On-site support for needs assessment and problem identification was provided by two linking agents in each state who also trained the local staff in ways to utilize the information system. One of these linking agents (state facilitators) was a staff member of the state education agency, and the other was on the staff of the state education association. Each committed about 10 to 15 percent of his or her time to the RDU project.

This project served 57 sites and, like the Georgia RDU project, operated primarily at the district level. Unlike Georgia, however, the NEA project also had individual school sites which were part of the project. Over 120 schools were involved in the project, with a mean pupil enrollment of 609. The racial distribution of students was 84 percent white, 10 percent black, 2 percent Hispanic, and 1.5 percent Oriental.

Florida Department of Education. Under this project, the Florida Department of Education began development of a linkage system involving the department, the state universities (including among them Florida State University and the University of Florida), eight of the state's Teacher Education Centers (TECs), approximately 30 schools in the eight TEC areas, and various other agencies. A distinctive feature of this project is that training in group problem-solving techniques was provided not only to the linking agent (one of whom is located in each TEC), but also to selected local school staff, called school site facilitators. The school site facilitators, with the help of their respective linking agents, were responsible for leading the staff at their sites through the entire problem-solving and knowledge-utilization process. The TEC linking agents played an important monitoring and facilitating role. Their involvement with the project ranged from half- to full-time. Each school was also assigned a university-based linker who played a less active, consultative role.

With the exception of the Georgia and NEA projects, Florida's individual sites served more students (17,943) in its 28 sites than any of the other projects, with a focus on reading and math curriculum projects.

All 28 of these schools were at the elementary level. Sixty-four percent of the students were white, 31 percent black, 2 percent Hispanic, and less than one percent each of the other categories. Almost half of the schools were located in areas identified as rural.

Michigan Department of Education. The RDU project in Michigan was designed to help local sites meet the requirements of state career education legislation passed in 1974. One of the project's major objectives was to develop a permanent dissemination and diffusion system in career education.

Because of this emphasis on permanence, the project attempted to work with existing structures rather than build new ones. Part of this strategy was to use as linking agents the 49 Career Education Planning District (CEPD) coordinators located within the state's participating intermediate service agencies. The CEPD coordinators were responsible for monitoring, assisting, and documenting project-related activities at the site level. However, this project differs from most of the RDU projects in that it placed less emphasis on the linking agent role; in fact, the project provided no salary support for the CEPD coordinators. The primary strategy was to provide direct training and programmatic funds to coordinators who were staff members at the local sites, thus building the sites' internal capacity for pursuing a problem-solving sequence and implementing innovative programs in career education. Forty-nine school or school district sites (one each in all but 5 of the state's 54 intermediate service districts) were assisted through this project. No data on school or district characteristics are presently available.

The NETWORK. Under the overall management of The NETWORK, a non-profit research and service organization in Andover, Massachusetts, a consortium of agencies in six states was formed to improve the utilization of R&D projects in reading in selected local schools. The six-state consortium was designed so that the member agencies would reflect a variety of organization types. In Minnesota, the agency involved was a teacher center associated with a university; in Washington, a local school district; in California, a regional educational laboratory sponsored by NIE; in Kansas, an independent statewide education diffusion organization; in Connecticut, a cooperative service agency supported by local school districts; and in Massachusetts, a division of The NETWORK itself. Approximately 25 school sites were served by the project's linking agents, who were committed to the project approximately full-time. Particular importance was given to their role as managers of the change process who coordinated both the internal and the external resources necessary for problem solving and R&D product utilization. A considerable amount of direct technical assistance and support was provided to the linking agents by the central project office.

The NETWORK consortium's RDU project served 26 schools with an average of 652 pupils per school. Of all the RDU projects, The NETWORK served the largest percentage of urban sites. Thirty-six percent of the schools were in urban areas, 14 percent were in mixed areas, and the remainder were rural or suburban.

PROBLEM SOLVING AND KNOWLEDGE UTILIZATION IN LOCAL SCHOOLS: SOME PRELIMINARY OBSERVATIONS

All of the seven projects have completed the federally supported service delivery phase of their activities. However, the research effort will continue until late 1980, and the following discussion is based on preliminary data, the sources of which include surveys of a principal informant at each site conducted shortly after entry into the program, a project site report completed after the end of the problem identification period (usually lasting 4 months to a year), and interviews with site staff conducted after the beginning of the program.

This report covers the first stages of activity engaged in by local schools as part of their involvement in the RDU Program. The main focus is on the following topics:

- pre-RDU problem identification efforts, and local educators' perceptions of the barriers to resolving problems;
- the process of identification of particular school problems requiring innovation and change; and;
- preliminary outcomes or impacts of the early stages of the RDU Program.

Prior to describing the process and outcomes in greater detail, a more holistic view of what happens in schools as a consequence of involvement in the RDU Program will be presented. The following vignettes were chosen to reflect some of the more common ways in which school-based activities varied by school type, by the degree to which they represented new activities versus complementing ongoing efforts to innovate, and by the type of problem identified by the school. Although these three capsules are factual accounts, the school names are fictitious.

Reding High School: High School Teachers Develop Cross-Departmental Reading Program

Reding High School is located in a suburban northeastern community with an economically and racially mixed population. Local teachers believe that there has been a serious reading problem in the senior high school "for years," but that in the past five years it has become significantly worse. Recent efforts to improve the reading program in secondary schools have involved "pull-out" activities for low-achieving students, which have lessened the problems only slightly.

The decision to select the school for participation in the RDU Program was made by the district-based reading specialist in conjunction with the superintendent. The principal was supportive, but teachers were initially skeptical of the program because they saw it as "another district program" and felt that it was not the job of high schools to compensate for weakness in reading that the students had acquired during earlier grades. A committee composed of the chairman of the language arts department, the school reading specialist, the district reading specialist, and several other language arts teachers worked over the first year to determine what could be done at the high school. It was decided that because supplementary reading programs were already employed, the best approach would be one which incorporated reading with basic disciplinary instruction. The San Diego Right To Read Program was selected at the end of the first year of the high school's participation in the RDU Program.

One of the notable features of this reading program is that it requires local adaptation of materials and implementation strategies. The committee made a decision that implementation should not be confined to language arts classes, and solicited support from social studies. At that point, the chairman of the science department also asked if he could participate in early use and materials development. A new committee was formed to reflect the concerns of all these departments. Committee members are enthusiastic about their work so far, and feel that the most important short-term outcome is increased communication across departments, which previously had been minimal.

Smokey Valley Elementary School: Reading Improvements Get Helping Hand

Some years before Smokey Valley Elementary School became involved in the RDU project, a district-wide committee had identified a need for more assessment, management, and grade-to-grade coordination of the elementary-level reading program. Moreover, the teachers did not have adequate means of assessing or recording the pupil's reading progress or identifying low achievers and gifted students.

By the time Smokey Valley entered the RDU Program, a standard basal reading series (Ginn 360) had already been adopted district-wide, and a decision had been made to use the Wisconsin Design reading management system.

The school entered the RDU Program hoping to use the additional resources to plan for implementation of the reading management system and to identify and implement other strategies for improving the reading program. During the project, members of the Reading Task Force (at times in collaboration with teachers from other schools in the district) modified the reading management system for use with the Ginn 360 series; developed a detailed procedural handbook for teaching reading; assembled and reorganized all of the school's reading resources; and adopted special programs for very able readers and for kindergarten pupils. The RDU linking agent assisted in this effort by arranging support for in-service and release time for planning, and by providing access to information from the project's knowledge base.

Springville School District:
Teachers Take Responsibility for In-Service Program

The Springville School District consists of an elementary school, a junior high school, and a high school in one building complex. Before the RDU project was initiated, the elementary school principal and secondary school principal had planned and conducted in-service meetings each year. As part of the RDU effort, an in-service committee was formed involving both teachers and administrators. Under the direction of the committee leader (a teacher), a needs assessment was undertaken and target problem areas were selected. Using an "800" telephone number, descriptions of potentially relevant in-service programs were obtained and evaluated, and several were ordered for use. Committee members then assumed responsibility for the entire in-service program, planning an in-service session during the year.

It is anticipated that the new decision-making structure for the design of in-service programs will become a permanent feature of the district, in large measure because of teacher enthusiasm for their expanded role.

Problem Identification: First Stage

The specifications set forth by the National Institute of Education for operation of the RDU Program restricted the focus of RDU activities to problems in basic skills or career education. Problem identification in the local schools or school districts was usually in a two-stage process. In almost all cases, schools had already identified a general problem area prior to their involvement with RDU project staff members who were to provide technical assistance in problem identification. In several of the RDU projects, the identification of a general problem area was delimited by participation in that specific project; for example, if only reading was covered in the knowledge base available through the project, reading became the targeted problem area.

Over one-third of the school administrators surveyed during the early months of the program indicated that their priority problems did not fall into the areas specified by the program guidelines and even more narrowly defined by their respective projects. In a large proportion of these cases, the problems were seen as related to staff development; they were not considered inherent in the curriculum or instructional materials which were

available in these schools. However, the apparent incongruence between substantive program focus and the problems identified by local personnel resulted in very litle conflict over the focus on basic skills or career education. As one local educator put it, "Schools always have a reading problem--it is one of the 'normal' problems of education."

Such shifts in problem focus should not be construed as mere opportunism on the part of school personnel. The objective was not to exploit the use of available funds (funds to local schools were, in fact, quite limited in this program). Rather, the ease with which these shifts took place reflects the fact that the choice of focus on basic skills and career education was perceived as important by the local educators.

In addition, evidence that the RDU Program was addressing significant and locally defined school improvement activities may be inferred from survey responses indicating that almost all of the schools involved in the program (92 percent) had previously engaged in some activities that were designed to help meet these two needs. In most of the schools, persistent and varied efforts had already been devoted over a period of many years to what were perceived as almost intractable educational problems; 72 percent reported that they had already looked for, and frequently implemented, new programs or curricula, while 83 percent indicated that special staff in-service training had been designed to alleviate local educational needs. Information from sources outside of the school or district had often been sought. In many cases, attempts to obtain services and information had involved quite extensive outreach to state education agencies, local or state universities and colleges, regional service agencies, and federal programs that could provide resources to local schools.

Despite this high level of activity, local educators felt that their problems had not been relieved by these efforts. Early survey data reveal that serious problems of managing change at the local level hindered attempts to get problem solving off the ground, particularly problems in acquiring information (mentioned by 75 percent of respondents as an "intractable" problem), defining the problem (60 percent considered it a serious problem), and mobilizing resources (a serious problem for 70 percent of the respondents).

In almost all cases, participation in the RDU Program was perceived by both administrators and teachers as a significant opportunity to try new problem-solving techniques and to receive outside aid to do so. In those cases where skepticism about the value of the program was expressed during the early months, it was usually because the school staff had not participated in the original decision to become involved in the program, but had been "nominated" for participation by a high-level administrator. However, in all but a very small number of instances, school staffs rapidly came to believe that this was "not just another crazy innovation dictated by the district office," but rather a new way of approaching the resolution of school-based problems.

Problem Identification: Second Stage

Once the school or district began to be more involved with RDU staff members--either the linking agents or others who provided technical assistance--the second stage of problem identification began. Problem identification was an important feature of the process in each RDU project. In all cases, project guidelines required that the school or district select either a team of individuals or, occasionally, a single person to accept responsibility for guiding the program at the local level. This individual or group operated as an "internal change agent" for the project.

The appointment of a local team was a critical part of the RDU strategy because the team was intended to foster a strong sense of local ownership of the program and the problem. In many, if not most, of the participating schools, this use of internal change agents was perceived as the first experience with genuinely participatory decision making related to a school-wide innovation. In one junior high school with a local reputation for a conservative educational approach, a seasoned teacher felt that only the fact that the teachers had a real voice in determining program objectives saved it from the sabotage at the classroom level that had accompanied district-mandated innovations. In other cases, teachers pointed out that there was a sense of purpose in related committee work that was absent in other activities in the school. A more subtle feature of the functioning of the internal change agent team was pointed out by a principal who stated that the presence of external technical assistance provided through the program

allowed him to sit in on team meetings like any other staff member. As a consequence, he said, for the first time his school had developed a program that was not dominated by his ideas.

The local change agent teams were, in most cases, quite active and usually involved participation by teachers (79 percent) and principals (49 percent). However, many had a broad-based set of participants, including administrators (29 percent), specialists (25 percent), and parents.* Very few teams included the district superintendent (7 percent) or community members (4 percent).

In general, the more serious the problems in managing the change process and acquiring resources to support change were perceived to be, the less likely the local team was to be broadly representative of school and community. In particular, where administrators felt that there would be serious difficulty in the school in developing a smoothly functioning change agent team, local teams were less likely to include participants from the district central office or parents. Central office staff, including the superintendent, were most likely to be included on a team where administrators perceived that the local teachers were not pressing for change. However, where teachers were highly supportive of the change effort, the team was often weighted in favor of the school staff.

One possible interpretation of these findings is that teams at the local level are likely to involve individuals that are nonschool-based only if the school administrator believes that there will be little internal resistance to change activities, but also little support for them. In these cases, centralized change efforts involving district personnel may be used as a vehicle for stimulating change activities. In general, however, there is a clear preference for weighting the change agent teams toward school staff members and, in particular, for preserving the boundary distinctions between professional personnel and community participants.

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*The percentage distributions reported in this section are based on the number of schools for which administrative reports were available (N=99)

The activities during the second stage of problem identification involved the cooperation of the local change agent team and RDU project staff. They often took the form of searching for concrete problem indicators to ensure that the perceived problems did, in fact, exist, and specifying the problems in order to determine what types of new programs or curricula could most profitably address them. Thus, for example, a school might enter the program stating that there was a problem with reading because student achievement levels had dropped. During the problem specification period, the school might decide that the real problem was a lack of an integrated program scope and sequence (which could lead to the choice of an innovation stressing improved management systems), or it could identify a specific weakness in the existing curriculum (e.g., lack of adequate focus on drill work most suitable for the type of student population and attention spans in the school).

In many schools, the problem specification process involved looking for a variety of indicators that the problem was "real." Such findings were not always perceived by staff as enlightening or new, but they could be used to persuade others of the need for action. In some cases, the problem statements were used to obtain additional funds from non-RDU sources to support implementation activities. In other sites, however, the staff discovered that the problems they had originally identified were not as severe as they had thought, and some shift in priorities occurred.

In addition, in at least some instances, the projects emphasized a locally conducted analysis of the perceived causes of the school or district weakness. This search often included the use of formalized self-study activities, usually supported through technical assistance from the projects. Upon entry into the program, for example, only 17 percent* of the schools cited a locally based needs assessment as evidence that their problem actually existed. However, subsequent reports written after the sites had completed the problem identification phase indicated that 55 percent of the sites involved had engaged in a formal needs assessment or self-study.**

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* Based on questionnaires administered to principal informants after entry to the program (N=99).

**Administrative reports (N=99).

There were many cases of increased examination of standardized test data (from 42 to 58 percent) and of general perceptions of staff opinions or concerns (from 40 percent to 62 percent).

Between the time that the program started and the completion of problem identification activities, there were marked changes in the ways that local personnel seemed to view their problems, as evidenced by a large increase in the percentage reporting that lack of professional skills and appropriate curricula and materials were major causes of problems, coupled with a large decrease in the number reporting that student cognitive performance was the major problem.

This finding is important for a number of reasons. First, there was an apparent shift in many schools from a view of student behavior or background as the cause of problems to one of the students as a victim of school problems. More importantly, it appears that school staffs were now more likely to indicate that the causes of problems lay in areas within their control, such as the adequacy of their own skills, or the nature of the curriculum. The increased sense of responsibility and control was positively perceived by staff members. Thus, for example, in one suburban school which was characterized by an increasing number of low-achieving children, teachers reported that, at the beginning of the program, they had felt that nothing could be done to improve student performance. Morale was reported to be low, because the teaching methods and styles employed by older teachers were no longer effective with students. While involvement with the RDU Program has by no means resolved the staff concerns, optimism was expressed about the possibility of changing the educational environment and skill mix of the staff.

It must be emphasized that this process and its attendant shifts in the perception of schools did not occur either rapidly or simply. In most cases, the problem identification process required many staff meetings over a long period of time. In only a few schools was the process completed within six months, and in many it lasted a full school year. In numerous cases, however, staff members stated that the problem identification process took too long, even though they had learned a great deal through their detailed analysis of problem indicators.

STRATEGIES FOR DELIVERY OF ASSISTANCE TO SCHOOLS: THE ROLE OF LINKING AGENTS

The RDU Program relied heavily upon externally based linking agents to facilitate improved problem solving and use of information at local sites. While other studies have produced considerable evidence of the usefulness of external linkers, it is not clear which of their roles and activities best facilitate local innovation under different conditions. A major research objective of the study of the RDU Program is, therefore, to determine how the natural variations in linker behavior that have ocurred during the program's design and implementation stages may shed light on appropriate linker roles. In this section, we deal only with a limited segment of our overall inquiry, profiling the linker and his or her activities and describing jobs as they were expressed in a relatively extensive survey conducted after the linkers had been working for two years.*

Linker Profile

In all projects, linking agents were situated neither in the project office nor in the local school districts, but in some other organizational unit that provides services to schools. The incorporation of linking agents in all projects was, in large measure, a consequence of the prevalent belief that the continuous (or at least intermittant) support of proximate external assistants during the change process contributes significantly to the effectiveness and persistence of change.

The roles preferred by RDU linking agents were at least partially determined by their career histories and the nature of their relationship to the overall project structure. The RDU linkers were a varied group. They were highly educated (almost all have advanced degrees) and came from a wide range of community backgrounds (30 percent rural, 40 percent small towns or cities, 35 percent urban). Their average age was 41, thus indicating a midcareer status for most, although it was for some their first "real job" since finishing graduate school. Some became linkers because the responsibilities naturally devolved to them within the context of their jobs, and others were hired from among the ranks of teachers and administrators,

*The data reported in this section are based on the response of 56 linking agents who responded to the survey.

essentially leaving old jobs behind. For a few, it was an alternative to unemployment, while to others it represented an exciting professional challenge. Some saw it as little more than an additional burden in an already overwhelming world.

Most linkers were former teachers, particularly in the NEA, Florida, and Michigan projects. The second most common background was that of school administrator. In general, however, they perceived their backgrounds as having little relevance to their RDU responsibilities. It would be naive to assume that such background characteristics can adequately predict linkers' actual roles. Rather, their roles seemed to be determined by their background and the complex interplay of their own expectations with those of others.

Linker Activities

The amount of time the linkers devoted to their roles varied across projects, but fell into three approximately equal clusters: 5 to 12 percent, 18 to 50 percent, and 80 to 100 percent. Differences also existed in the number of sites for which they were responsible, with project averages ranging from two to nine. Not surprisingly, there were great qualitative differences in the involvement of linkers with their client sites, depending on the extent of their responsibilities. For example, a linker who spent 50 percent of his or her time on RDU-related activities working with seven or eight school districts was in a very different situation from one who worked 95 percent of the time with only four schools. Such differences had considerable impact on job-related activities.

Central to the issue of why linkers are important is the debate over what linkers are supposed to do, and what services they should provide. The range of widely acknowledged possible roles include facilitating the transfer of information, delivering technical assistance, facilitating the decision-making process by clarifying goals and providing leadership, and mediating among autonomous and sometimes competing organizations whose resources and services must somehow be coordinated.

Linker activities can be categorized into three domains:*

*A fourth domain--information acquisition skills--is frequently cited elsewhere as a linker activity. It is not included here since each project had a knowledge base and RDU linkers therefore were not expected to be "resource finders."

- process expertise: This refers to the linker's ability to perform technical assistance functions that are designed to help the local school or site staff better understand their own group dynamics during the change process and to provide technical assistance that will facilitate the development of appropriate attitudes toward change and the knowledge utilization process. (Some types of process expert roles measured in the linker survey were conflict resolver, trainer, and evaluator.)

- content expertise: The content expert is one who can provide specific advice that is related to the particular innovation or problem area in question. There are many familiar role models in this area, with one of the most familiar being the subject matter specialist. (The linker survey also included two other content expert roles specifically related to the linker role: innovations expert, someone who has a broad understanding of new program developments in education R&D, and implementation specialist, an individual who is able to provide specific assistance in ways to implement new education programs.)

- general support skills: Many of the roles which linkers play do not require specific substantive expertise, but can be said to involve either general human relations sensitivity, or the ability to provide extra time, energy, and managerial support to a local school's change activity. Among the generalist activities which linkers may engage in are observer, documentor, resource person, counselor, and coordinator.

Describing their roles in global terms, most linkers stated that they saw themselves as process experts. However, survey data indicate that linkers most often performed general support activities; while the frequency of performance of process and content roles was approximately equal. The discrepancy between global self-reports and responses to survey questions categorizing their activities is probably due to the fact that linkers saw their general support activities as part of the process expert role.

Linkers also performed daily activities, which fell into five categories:

- support of project, including meeting with planning groups on site and reporting to supervisors;

- o interaction with individual teachers rather than only meeting with teachers as a group on the planning team.
- o completion of paperwork and forms, including managing budgets and designing, administering, and analyzing evaluation materials;
- o interaction with local administrators to promote the program or to arrange and conduct workshops; and
- o development of increased professionalism by keeping abreast of R&D developments.

These have been analyzed in terms of the linker's perception of his or her importance, the amount of time spent performing these functions, and the general satisfaction they provide.

Project-support activities and interaction with administrators consumed the most time. The latter function was perceived by linkers to be the more important since it provided them with important feedback, psychological support, and a sense of culmination of other activities. The least important activity was thought to be that of interacting with individual teachers. While this is a somewhat suprising finding, we would interpret this as a consequence of the strong thrust of the RDU projects and program toward organizational change rather than individual change, and the emphasis placed in most of the project designs on the selection and support of a group problem-solving process (of which teachers are an important part) rather than an individual one-to-one persuasion process. Also of low priority was the paperwork and forms function, which took less time than any other activity except working with individual teachers. Of particular importance to linkers was their own professional development.

The intervention style adopted by the linker constitutes the second domain of the linker role: The two intervention styles are:

- o reactive style: Linkers may respond to requests for assistance from school staff members or to needs or concerns as they become evident. A reactive linker tends to maintain a low profile, and his or her activities may only occasionally be recognized as critical.
- o proactive style: Linkers may become involved members of the local problem-solving team, offering their opinions about both processes and decisions that are made. Additionally, they may take a role as a "super-ego," analyzing and assessing the progress that the school is making toward whatever goals have been set.

Linker survey data indicate that most linkers believed that they were more likely to assume reactive than proactive roles. The data also indicate, however, that those who spent a greater proportion of time working as linkers were more likely to assume proactive roles, generally in the process or content domains.

Job Stress and Its Sources

The linker role is often perceived by theorists to be a lonely, marginal, and inherently stressful one. Role conflict, based on different and incompatible expectations from different role partners, is seen as a primary source of job-related stress, and can be exacerbated by a lack of information or guidelines on required or anticipated job behaviors, or by role overload.

Linker jobs, on the whole, were poorly articulated. A formal job description existed for only 28 percent of the linkers, and only half of these linkers reported that the description had been modified to better reflect the duties of their job. Also reported were quite a few discrepancies between their own beliefs about the types of tasks or activities that they should engage in, and the expectations of their supervisors and clients in schools.

Linkers perceived RDU project staff members as wanting linkers to act as technical assistants in evaluation, while local schools were perceived as placing little value on these activities. On the other hand, it was thought that local staffs emphasized linker expertise in subject matter and involvement in implementation, while project staff members deemphasized this aspect of the linker role. However, some consensus emerged around the perceptions that the most important part of their role was to act as coordinators and resource persons at the school level.

Closely linked to the notion of role conflict is that of marginality, which pertains to the relative sense of identification an individual feels for the different organizations with whom he or she interacts. The linker role is viewed as inherently marginal because the linker belongs neither to the world of practice nor of research. Lacking a sense of identification with the groups with whom one works or feeling the need to act diplomatically at all times is assumed to produce psychological stress.

On the whole, RDU projects were hard pressed to design effective strategies reducing the linker's job-related stress. Many were expected to play low visibility roles so that they were not considered by one group as being allied with the others.

In addition, because of the geographical dispersion of sites in some projects, communication represented a real problem. Some projects addressed this problem by sending "circuit riders" from the project office to visit linkers in attempts to keep them informed and to keep their morale up, others relied on telephones for communication. A very different approach was that of hiring linkers to serve in host organizations of which they were already staff members, or of building in a mechanism for formal host organization supervision of some sort. Overall, it seems that a linker's perceived marginality is largely idiosyncratic and likely to be influenced by such factors as personal disposition, the relative stability of the arrangement in which he or she is situated, and the kinds of mechanisms that his or her project provides to enhance a sense of identity with the project.

Supervision and communications patterns seem, in effect, to have replaced job descriptions in providing role formalization and definition, and survey data indicate that linkers were more firmly tied to their locale than to their projects. Fifty-nine percent of the linkers reported that formal supervisory assessments occurred primarily at the site or host agency organization level, and only 25 percent reported such formalized procedures at the project level. Nevertheless, project directors did seek to influence the way in which linkers allocated their time, and frequently maintained informal contact through project evaluators. For the most part, such contact was minimal compared to the level of communication between linkers and certain local personnel, frequently education specialists. Nevertheless, project directors were seen by linkers as having a great deal of influence over the activities in which they engaged. Thus, individuals who were unlikely to communicate frequently with the linker, and even less likely to actually provide any feedback on job performance, were nonetheless perceived as having great control over what the linker did. Again, this would appear to produce considerable uncertainty and alienation for the linker.

As a consequence, linkers frequently turned to their peers for support. These included both linkers situated within their own projects and other individuals within the host organization who performed similar roles. Probably the linker's most significant role partners were school personnel (clients), who provided important feedback and support, and had particularly strong influence over the ways in which the linker allocated his or her time. The strong reliance of the linker upon school district personnel for psychological support should be considered in light of the fact that linkers perceived project directors and school staff members as having quite different preferences regarding the types of roles that the linker should play. Thus a situation of role conflict may appear virtually inevitable.

Overall Satisfaction

On the whole, linkers stated that they were moderately satisfied with their jobs, depite these indicators of stress. The factors contributing to linker satisfaction were opportunities for personal growth, low levels of conflict, and productive communication. Linkers also experienced less role conflict if they were identified with one or the other organization (generally the local host organization), rather than with neither.

While linkers stated that communication was important in providing useful feedback and valuable psychological support, the general principle of "more is better" did not necessarily apply. Rather, it was the usefulness of the communication that counted and, not surprisingly, linkers tended to value communication with their peers most highly although it occurred less frequently than did communication with project office personnel and local specialists and staff.

Aside from the satisfaction derived from the functions themselves, certain overall job characteristics, such as autonomy, challenge, the level of "red tape," predictability, and the relationship of extrinsic and intrinsic rewards to performance had a bearing on the linker perception of satisfaction. In general, linkers found their jobs challenging and growth-producing, although, over time, this perceived level of challenge was lowered somewhat as the job became more predictable. Linkers, on the whole, felt themselves to be largely on their own, although there were inevitable bureaucratic constraints involved in getting things done. Generally, they experienced a high level of personal satisfaction (intrinsic reward) due to the

visibility of the impact of their efforts, but were less enthusiastic about extrinsic rewards, particularly the uncertainty of their future. This factor varied according to the level of involvement, although those most and least involved were more satisfied than those in the middle range, perhaps because it was more of a burden and less of a stepping stone to those who worked 18 to 50 percent of the time than to those who worked more or less.

Linker Impact

More is now known about the external linking role and about the people filling that role in the RDU Program. In addition, there are early indications of the importance of linking agents in the school improvement process. In the earlier vignette about Reding High School, for example, both external observers and the school staff agreed that no progress would have been made without the linker, who was instrumental in suggesting changes to broaden the composition of the committees working on the RDU task, helping to set up detailed objectives for committee work, and providing assistance in the development of evaluation guidelines for the project.

Many local school and district personnel cited a lack of time and resources for nonroutine activities. They reported the need for someone to initiate meetings, encourage others to take specific actions, and follow up on them in order to make sure things happen. Linking agents can provide these functions for schools, and, according to school personnel, this is the most generally valued resource that they offer. In addition, the relatively low dropout rate for program participants (fewer than 9 percent of the schools originally involved in the first year of program activities were not actively involved by the end of the third year) is, in large measure, attributable to the presence of the linking agent, who often served as both a catalyst and a goad when staff enthusiasm faltered. Many schools reported that they would never have gotten as far as they did without the linking agent's ability to serve as a "superego."

Finally, there is also evidence that some linking agents actually served as organizational change agents, providing assistance in resolving staff conflicts, looking for resources beyond those offered within the project knowledge base, and encouraging the development of multiple change projects in their client schools, even where these were not supported through the RDU Program.

The amount of time spent as an RDU linking agent obviously affected the ways in which these activities were provided and the results obtained. Where the linker had a low level of involvement in a school, it usually resulted in his or her working closely with one internal site person who then served as the catalyst for what happened. More extensive involvement by the linker usually resulted in there being more of an effort made to keep many internal site people active in the problem-solving process.

Early evidence from interviews with local school staffs suggests that active linking agents were able to help school personnel move in the desired direction on the following four dimensions of successful change:

- away from generalized problems toward specific objectives;
- away from old relationships built around previous behavior patterns toward new relationships which support the intended changes in behavior and/or attitudes;
- away from self-doubt and a lowered sense of self-esteem toward a heightened sense of self-esteem; and
- away from external motive for change ("the principal wants me to change") toward an internalized motive for change ("I want to change").

EARLY OUTCOMES OF THE RDU PROGRAM

Site experiences have varied, but data from face-to-face interviews with school staff conducted approximately two years after the beginning of the program indicate some early benefits have resulted from the RDU Program, though sometimes in unexpected areas. For the most part, such improvements can be identified in the following seven areas:

- o communications
- o teacher involvement
- o program planning
- o teaching methods
- o problem-solving process
- o reaching targeted groups
- o morale and school reputation

Lasting benefits to the schools, as cited by participants in a large number of sites, include much higher levels of communication among teachers and the improvement of school-community relationships through the involvement of parent volunteers or through the publicity that the school received by participating in the program. A number of schools took the opportunity to create public awareness of the improvement efforts, including the preparation of news releases.

According to these interviews, this increased communication has resulted in much greater involvement by teachers in planning their own programs. For example, the Right-To-Read coordinator in a Washington (state) school district reported increased initiative on the part of teachers in the conduct of staff meetings, which he felt indicated a sense of increased power among teachers. This change was attributed largely to staff development sessions that had been part of the problem identification process.

The principal of a West Coast elementary school reported a shift from apathy to enthusiasm and a noticeable improvement in staff teaching methods. The adoption of an integrated reading program also resulted in new communication between the K-3 teachers--who had been a powerful clique--and the fourth and fifth grade teachers. Although the K-3 teachers initially had not accepted some new fourth and fifth grade staff, the increased communication quickly resulted in reunification of K-5 teachers.

Site staff were also asked about how much change had occurred in curricula, staffing patterns, materials, and teaching methods as a result of participation in the RDU project. In the area of curriculum (the content of instruction), relatively little change was reported. This is not particularly surprising since most RDU projects focused on "the basics." Major change in curriculum is most likely to occur when a new subject area is added, as in the case of infusing career education or self-awareness ideas into the existing curriculum. Somewhat more change was reported in the area of instructional materials, for example, use of a new reading series or supplemental materials. Addition of supplementary materials is seen as a minor change, while replacement of a reading series is perceived as more significant. The most change appears to be taking place in the area of teaching methods. This finding is not surprising considering the programmatic emphasis on teacher participation in the problem-solving process, a process which resulted in changes in an area of immediate and daily concern to teachers.

Changes in staff composition have been limited to the occasional hiring of a new subject matter specialist. More significant, however, have been changes in staff roles and role relationships. A reading specialist reported, for example, that she used to be seen as someone to whom other teachers sent their problem students; now, she said, she is seen as a resource to whom her colleagues turn for advice and information on how to deal with the problems themselves (which also suggests some professional growth for her colleagues).

More directly related to RDU Program aims is the extent to which changes in the problem-solving process are incorporated into site procedures. In our site visit interviews, staff indicated they felt they could go through problem definition and solution selection activities again, and a few sites were already using these processes or had plans to do so. Although some respondents felt that their schools could accomplish these tasks without outside help, most indicated that they would need assistance in two areas. First, they would need release time to go through the problem-solving activities. (This was seen as critical at several sites.) Clearly, this process has cost implications since substitute teachers must be paid to cover for the

regular staff being released. Second, several respondents indicated they would need information on potential solutions, a service currently provided by the linking agent. (At one site, a respondent felt capable of identifying potential solutions from products listed in the various catalogues, but felt he would need release time in order to be able to do so.)

Preliminary data are also available on local implementation of R&D products selected as potential solutions at sites visited by the research staff. Respondents at these sites were asked what proportion of students and staff members who were affected by the problem were actually involved in using the solution. Although many of the sites had just begun to implement the solution during the term when the interviews were conducted, over half of the programs implemented were reported to be reaching half or more of the intended target groups. It was fairly common for sites to begin with partial implementation and to expand in the following term.

Many of the changes outlined have resulted in increased morale at RDU Program schools, which, in turn, have sometimes had dramatic impacts on the school's overall functioning. Some participating schools changed from being perceived as the least desirable in a district to having a "light-house" image. An elementary school, described by its principal as having a "wrong side of the tracks" reputation, had previously been seen by teachers in the district as a dead end: teachers assigned there tended to request transfers as quickly as possible. Poor self-images on the part of pupils were blamed for their low motivation and poor performance. After the school implemented a program to improve its (primarily socioeconomically disadvantaged) students' self-images and language arts performance, a rather dramatic improvement in public performance and a reduction in student behavior problems begun to attract favorable attention from other schools in the district. The principal reported that, for the first time in his three-year tenure as principal, two teachers had requested transfers to that school. At the time this information was collected, the district office was considering putting the same program into effect at another school in the district, which also had a primarily low-income student body and which displayed similar problems. Similarly, two other schools in different parts of the country have found themselves to be the center of local attention because of marked and

immediate improvements apparent in students' motivation and performance. In both cases, teachers from other schools were coming to watch the new programs in these schools.

Overall, the changes that are introduced as a consequence of the implementation of R&D products are likely to be far from radical. Most of the products will have their greatest impact in the area of new materials and teaching methodologies, and in changes in scheduling or the use of existing facilities.

Areas that seem to be less affected are the reorganization of the entire curriculum; the use, distribution, and deployment of professional staff; and school management or organization. While the selected R&D products are seen as alleviating the problems that stimulated the school's involvement in the program, in few cases are they seen as "solutions." The problems in most staff members' opinions, will still remain. However, there is optimism about lessening the severity of the problems, and a new sense that problems are, in fact, tractable.

CONCLUSIONS

This interim report has served as a descriptive introduction to the Research and Development Utilization Program. It has focused on the seven RDU projects, the schools that were selected to participate in the program, the first steps taken by schools in the process of improved problem-solving and knowledge utilization, the role definitions of the linking agents, and the early outcomes of the program.

Because our intent has been primarily descriptive, we have not yet addressed in any detail the "bottom line" for the six major issues that were pointed to in the introduction as being central to the study (see page 8). Yet, our data collection activities, which have included site visits to 42 participating schools and detailed interviews with project participants, hint at a heartening potential for successful program outcomes. Because many of these site visits and interviews were conducted after the completion of the technical papers upon which this report is based, any statements about outcomes should be viewed as impressionistic rather than thoroughly analyzed. Nevertheless, we feel that there are a number of emerging "findings," which we believe will be firmly supported through a more systematic analysis:

- A great majority of the schools participating in the program are implementing projects that are relevant to locally defined problems in the area of basic skills and career education.
- Schools participating in the program are engaging in more systematic needs assessments than they did prior to involvement in the program and hope to apply this process to other problem areas in their schools.
- Individual teachers actively involved in the program report personal development in leadership skills, awareness of R&D products, problem-solving skills, and teaching techniques.
- Services of educational linking agents are valued by schools involved in the program. Linkers are perceived primarily as facilitators of school decision making rather than as decision makers.
- Most participating RDU projects are looking for ways to maintain their functioning now that NIE funding is ended.

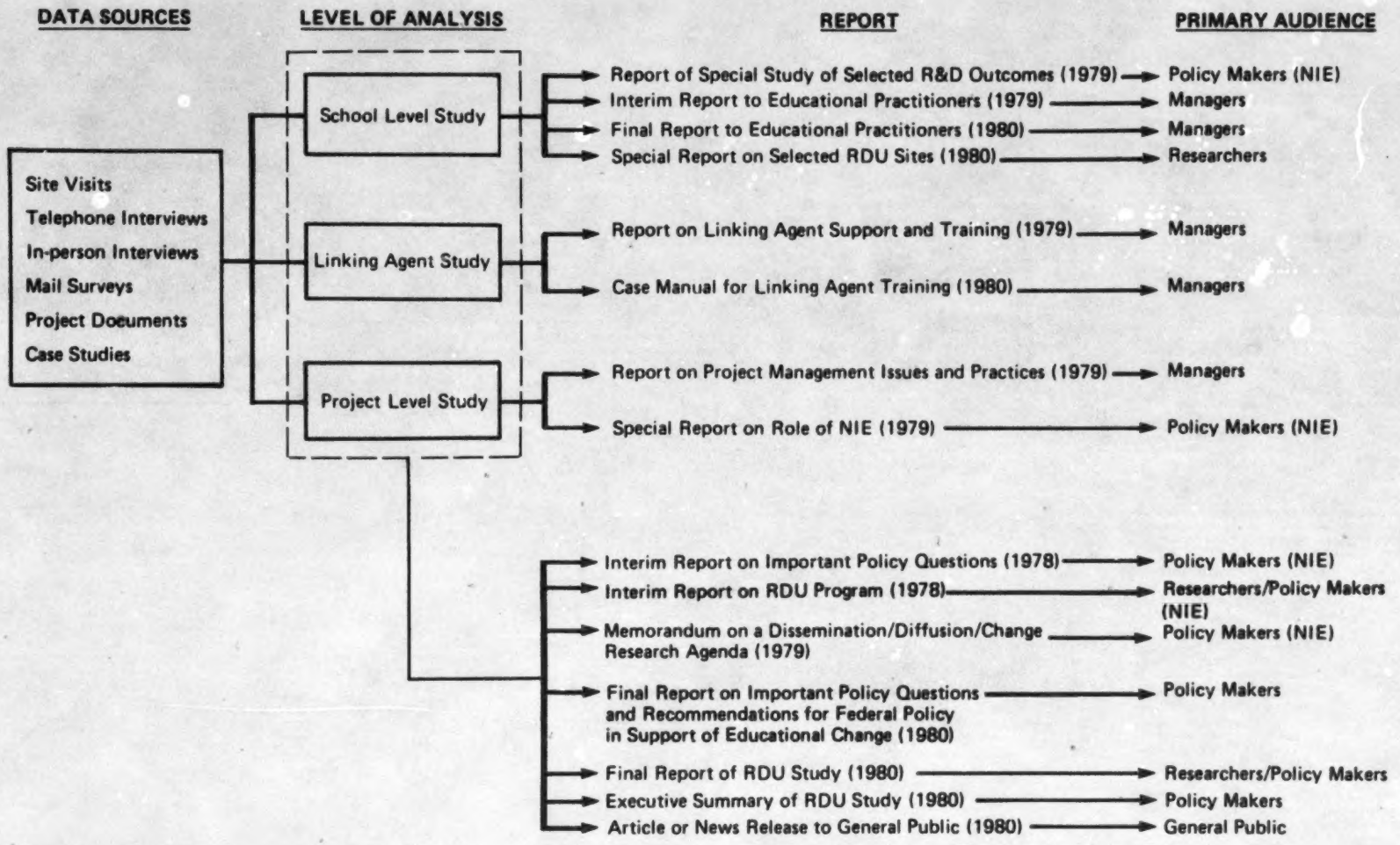
- Most RDU projects do not offer major financial support to the participating schools and districts. However, some financial support appears to be critical to successful involvement in the program, particularly to subsidize release time for personnel involved in the problem solving team.

Our study is, however, more than an evaluation of the RDU Program. Although the program itself is over and assessments of its successes or weaknesses cannot be used to fine-tune an ongoing educational endeavor, the lessons that can be learned from the activities and outcomes of the program will have important implications for RDU-like networks that now exist as well as for the design and management of future federal, state, and local efforts to improve schools. Furthermore, we anticipate that our analysis of schools, projects, and external linkages will contribute to a more general understanding of the change process in local school systems. This report contributes to an understanding of the phenomenon being studied, an essential ingredient in our capacity to offer more generalizable interpretations.

APPENDIX

APPENDIX

THE RELATIONSHIP OF DATA SOURCES, LEVELS OF ANALYSIS, REPORTS, AND AUDIENCES IN THE STUDY OF THE R&D UTILIZATION PROGRAM


DATA SOURCES
LEVEL OF ANALYSIS
REPORT
PRIMARY AUDIENCE
Site Visits
Telephone Interviews
In-person Interviews
Mail Surveys
Project Documents
Case Studies
School Level Study
Linking Agent Study
Project Level Study
Report of Special Study of Selected R&D Outcomes (1979)
Policy Makers (NIE)
Interim Report to Educational Practitioners (1979)
Managers
Final Report to Educational Practitioners (1980)
Managers
Special Report on Selected RDU Sites (1980)
Researchers
Report on Linking Agent Support and Training (1979)
Managers
Case Manual for Linking Agent Training (1980)
Managers
Report on Project Management Issues and Practices (1979)
Managers
Special Report on Role of NIE (1979)
Policy Makers (NIE)
Interim Report on Important Policy Questions (1978)
Policy Makers (NIE)
Interim Report on RDU Program (1978)
Researchers/Policy Makers (NIE)
Memorandum on a Dissemination/Diffusion/Change Research Agenda (1979)
Policy Makers (NIE)
Final Report on Important Policy Questions and Recommendations for Federal Policy in Support of Educational Change (1980)
Policy Makers
Final Report of RDU Study (1980)
Researchers/Policy Makers
Executive Summary of RDU Study (1980)
Policy Makers
Article or News Release to General Public (1980)
General Public

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